1 **Claims:**

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3 1. A method of communicating information within a
4 physical link layer of a packet based communication
5 system, comprising the steps:
6   a) Employing a physical link layer
7   transmitter to substitute an additional
8   input data field within an idle data field
9   of a data stream transmitted within the
10   packet based communication system ; and
11   b) Employing a physical link layer receiver
12   to extract the additional input data field
13   without corrupting information contained
14   within the data stream.

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16 2. The method of claim 1 wherein the step of substituting
17 an additional input data field within an idle data
18 field comprises the steps:
19   a) Detecting one or more idle data field
20   characters; and
21   b) Replacing the one or more idle data field
22   characters with one or more physical link
23   layer data characters.

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25 3. The method of claim 2 wherein the one or more idle
26 data field characters to be replaced are located
27 within two or more of the idle data fields.

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29 4. The method of claim 2 or claim 3 wherein the step of
30 extracting the additional input data field without
31 corrupting information contained within the data
32 stream comprises the steps of:
33   a) Detecting one or more physical link layer
34   data characters; and

1   b)   Extracting and replacing the one or more

2   physical link layer data characters with

3   idle field characters.

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5   5. The method of any of claim 2 to claim 4 wherein the

6   step of replacing the one or more idle field data

7   characters with the physical link layer data

8   characters comprises replacing one or more idle field

9   data characters with a start data insertion

10   multiplexer character.

11

12 6. The method of claim 5 wherein the step of replacing

13   the one or more idle field data characters with the

14   physical link layer data characters further comprises

15   replacing one or more idle field data characters with

16   a data control character.

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18 7. The method of claim 5 or claim 6 wherein the step of

19   replacing the one or more idle field data characters

20   with the physical link layer data characters further

21   comprises replacing one or more idle field data

22   characters with an additional input data character.

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24 8. The method of any of claim 2 to claim 7 wherein the

25   step of replacing one or more idle data field

26   characters with the physical link layer data

27   characters further comprises the step of replacing one

28   or more idle field data characters with an end input

29   data character.

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31 9. The method of any of claim 5 to claim 7 wherein the

32   step of detecting the physical link layer data

33   comprises activating a data extraction de-multiplexer

1   when the receiver detects one or more start data
2   insertion multiplexer characters.

3

4   10. A packet based communication system comprising one or
5   more transmitters, one or more transmission media and
6   one or more receivers wherein at least one of the one
7   or more transmitters comprises a data insertion
8   multiplexer for generating and inserting physical link
9   layer data, and at least one of the one or more
10   receivers comprises a data extraction de-multiplexer
11   for detecting and extracting the physical link layer
12   data.